

Page 12 line 8: "It is also possible to transform a transmit symbol sequence a second time to place the symbols into the frequency domain to create an OFDM transmission. This can be accomplished by multiplying the transmit symbol sequence by a matrix that performs a discrete inverse Fourier transform (DIFT). Another equivalent method to do the same time-to-frequency operation would be to do an IFFT. Thus, the OFDM transformed transmit symbol sequence may be transmitted in the frequency time domain and the modulation technique may be called "Frequency Domain Inverse Matrix Modulation" (FDIMM)."

Page 13: "Fig 5 is another block diagram 500 of the present invention. The signal flow starts at step 502. At step 504 a data sequence to be transmitted is loaded. At step 506 an input symbol sequence is formed from the data sequence. At step 508 a non-orthogonal mother matrix multiplies the input symbol sequence to create an intermediate transmit symbol sequence. The matrix may be over-determined, creating more output symbols than input symbols. In step 510 the intermediate transmit symbol sequence is converted into the frequency domain an OFDM transmission using another matrix multiply that performs the DIFT. The equivalent result could be achieved with an IFFT operation. At step 512 a guard interval (or cyclic extension) is optionally added to the transmission to simplify equalization in the presence of channel echoes. At step 514 the transmit symbol sequence is modulated and up-converted in frequency for transmission with the transmit symbols sent sequentially in frequency. In step 516 the transmit symbol sequence is transmitted over a signal path. In step 518 a received symbol sequence is captured. In step 520 the received symbol sequence is down-converted and demodulated in a reverse of step 514. If necessary, equalization and timing recovery can also be accomplished in step 520. At step 522 the processing of step 510 is reversed with a FFT data are converted from time domain symbols into frequency domain symbols. The guard interval is discarded. At step 524 the badly corrupted symbols are excised. A determination of which symbols to discard can be made by analyzing a training signal

passed through the channel to discover frequency-selective fades. Additionally, mildly corrupted symbols may be combined to reduce the affects of noise by averaging. At step 526, removing the columns from the mother matrix that correspond to the corrupted “